

Application No.: 09/980,468  
Inventor: HEINZ et al.  
Reply to Office Action of 27 January 2006  
and the Advisory Action of 17 May 2006  
Docket No.: 0093/00029

**Amendments to the Claims:**

1. (currently amended) An isolated nucleic acid sequence which codes for a polypeptide having  $\Delta 6$ -acetylenase and/or  $\Delta 6$ -desaturase activity, selected from the group consisting of:
  - a nucleic acid sequence having the sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3 or SEQ ID NO: 11,
  - nucleic acid sequences which, as a result of the degeneracy of the genetic code, are derived from the nucleic acid sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3 or SEQ ID NO: 11, and
  - derivatives of the nucleic acid sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3 or SEQ ID NO: 11, which ~~code for~~ encode polypeptides having the amino acid ~~sequences~~ sequence depicted in SEQ ID NO: 2, or for polypeptides ~~a polypeptide~~ having at least 95% homology thereof at the amino acid level and having at least 10% of the enzymatic action of the polypeptides ~~having~~ polypeptide containing the amino acid sequence in SEQ ID NO: 2.
2. (withdrawn) An amino acid sequence encoded by a nucleic acid sequence as claimed in claim 1.
3. (withdrawn) An amino acid sequence as claimed in claim 2, encoded by the sequence depicted in SEQ ID NO: 1, SEQ ID NO: 3 or SEQ ID NO: 11.
4. (original) An expression cassette comprising a nucleic acid sequence as claimed in claim 1, where the nucleic acid sequence is linked to one or more regulatory signals.
5. (previously presented) A vector comprising a nucleic acid sequence as claimed in claim 1, or

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an expression cassette comprising a nucleic acid sequence as claimed in claim 1, where the nucleic acid sequence is linked to one or more regulatory signals.

6. (canceled)

7. (canceled)

8. (currently amended) A transgenic plant comprising an expression cassette comprising a nucleic acid sequence as claimed in claim 1, where wherein the nucleic acid sequence is linked to one or more regulatory signals.

9. (previously presented) A process for preparing unsaturated fatty acids, which comprises introducing at least one nucleic acid sequence as claimed in claim 1 or at least one expression cassette comprising a nucleic acid sequence as claimed in claim 1, where the nucleic acid sequence is linked to one or more regulatory signals into an oil-producing organism, culturing this organism and isolating the oil contained in the organism, and liberating the fatty acids contained in the oil.

10. (previously presented) A process for preparing triglycerides with an increased content of unsaturated fatty acids, which comprises introducing at least one nucleic acid sequence as claimed in claim 1 or at least one expression cassette comprising a nucleic acid sequence as claimed in claim 1, where the nucleic acid sequence is linked to one or more regulatory signals into an oil-producing organism, culturing this organism and isolating the oil contained in the organism.

11. (previously presented) A process as claimed in claim 9, wherein the unsaturated fatty acids have an increased content of unsaturated fatty acids with a triple bond or with a

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double bond in position 6 or a triple bond and a double bond in position 6.

12. (previously presented) A process as claimed in claim 9, wherein the organism is a plant or a microorganism.
13. (withdrawn) A protein comprising the amino acid sequence depicted in SEQ ID NO: 8.
14. (withdrawn) A protein comprising the amino acids sequence depicted in SEQ ID NO: 10.
15. (canceled)
16. (withdrawn) A process for preparing triglycerides with an increased content of unsaturated fatty acids by incubating triglycerides with saturated or unsaturated and unsaturated fatty acids with at least one of the proteins as claimed in claim 2 or a protein comprising the amino acid sequence depicted in SEQ ID NO: 8 or SEQ ID NO: 10.
17. (withdrawn) A process as claimed in claim 16, wherein the triglycerides are prepared in the presence of a compound which is able to take up or release reducing equivalents.
18. (withdrawn) A process as claimed in claim 16, wherein the fatty acids are liberated from the triglycerides.
19. (withdrawn) An unsaturated fatty acid prepared by a process as claimed in claim 9.
20. (withdrawn) A triglyceride with an increased content of unsaturated fatty acids prepared by a process as claimed in claim 10.

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21. (canceled)
22. (withdrawn) The use of a nucleic acids sequence as claimed in claim 1 or of a fragment thereof for isolating a genomic sequence by homology screening.
23. (withdrawn) The use of unsaturated fatty acids as claimed in claim 19 for producing human foods, animal feed, cosmetics or pharmaceuticals.
24. (previously presented) A non-human organism comprising at least one nucleic acid sequence as claimed in claim 1.
25. (previously presented) A non-human organism comprising at least one expression cassette as claimed in claim 4.
26. (previously presented) A non-human organism comprising at least one vector as claimed in claim 4.
27. (previously presented) A non-human transgenic organism as claimed in claim 24, where the organism is a plant, a microorganism, or an animal.
28. (previously presented) A non-human transgenic organism as claimed in claim 25, where the organism is a plant, a microorganism, or an animal.
29. (previously presented) A non-human transgenic organism as claimed in claim 26, where the organism is a plant, a microorganism, or an animal.